

WHAT IS CLAIMED IS:

1. A method of supplying power to an electrical circuit of a downhole tool comprising:
5 providing a fuel cell comprising a housing, a fuel vessel, an oxidant vessel, a reaction zone and electrical connectors, wherein the fuel cell is enclosed within the housing except for the electrical connectors;
electrically connecting the fuel cell to the electrical circuit of the downhole tool;
inserting the downhole tool and fuel cell into a wellbore; and
10 generating electricity within the wellbore from the fuel cell and supplying at least some of the electricity to energize the electrical circuit of the downhole tool.
2. The method of claim 1, wherein the fuel cell further comprises a battery electrically connected to the fuel cell, thus forming a hybrid power supply capable of storing a
15 portion of the electricity generated by the fuel cell.
3. The method of claim 1, wherein the fuel cell comprises no internal moving parts.
4. The method of claim 1, further comprising:
20 contacting water produced within the fuel cell with metal hydride material and producing hydrogen gas.
5. The method of claim 1, further comprising:

injecting the produced hydrogen gas into a fuel supply line supplying fuel to the fuel cell reaction zone.

6. A power source for use in a well, comprising:

5 a solid oxide-type fuel cell.

7. A method for powering a tool in a well, comprising:

operatively connecting a solid oxide-type fuel cell to the tool.

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